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3.2 Bridges

The information in Article 3.2 for preliminary design of bridges generally is organized by task in the design process. The sequence of the tasks for a specific design project will not necessarily follow the sequence in this article but, before completing a preliminary design, the designer should review the information on each of the following topics that are applicable.

- Identification numbers
- Stream and river crossings
- Highway Crossings
- Railroad crossings
- Pedestrian and Shared Use Path Crossings
- Superstructures
- Substructures
- Cost estimates
- Preliminary Situation plans
- Permits and approvals
- Forms

When developing the site for bridge projects the designer should endeavor to use standard bridges as much as possible. The office has four types of standard bridges described in the superstructures article:

- Three-span continuous concrete slab (CCS) bridges, J-series [BDM 3.2.6.1.1],
- Single-span pretensioned prestressed concrete beam (PPCB), HSI-series [BDM 3.2.6.1.2],
- Three-span pretensioned prestressed concrete beam (PPCB) bridges, H-series [BDM 3.2.6.1.4], and
- Three-span rolled steel beam (RSB) bridges [BDM 3.2.6.1.5].

Additionally the office has several series of standard pretensioned prestressed concrete beams [BDM 3.2.6.1.6] that may be used to assemble bridges with lengths and numbers of spans that vary from the standard bridges. For spans above 155 feet or for bridges on significant horizontal curves the designer may select a continuous welded plate girder superstructure [BDM 3.2.6.1.7].

~~Efficiency during the design process also is improved if a bridge project can make use of AutoBridge software, which is described in more detail in a following article [BDM 3.2.6].~~

3.2.1 Identification numbers

A new bridge will be assigned three identification numbers: a bridge design number, an FHWA number, and a bridge maintenance number. The preliminary designer need only assign the bridge design number; the FHWA and bridge maintenance numbers are assigned later by others. Assigning the bridge design number requires consideration of record keeping, letting dates, and final design plan preparation. The preliminary designer shall follow the rules in Table 3.2.1.

Table 3.2.1. Bridge design number assignment rules

Design Condition	Similar Geometry ⁽¹⁾	Design numbers
Single bridge with a common approach roadway crown that requires a split into two bridges with a 2-inch (50 mm) separation to reduce temperature forces ⁽²⁾	---	One
Two new bridges (duals) with open median	Yes	One
Two new bridges with separate roadway approach crown, separated by a 2-inch (50 mm) gap	Yes	One
	No ⁽³⁾	Two
Widening of existing duals	For widening, yes	One
	For widening, no	Two
Multi-staged construction involving left and right bridges, each letting	Yes	One
	No ⁽³⁾	Two
Two new bridges in different lettings that otherwise could be considered duals	Yes	Two

Table notes:

- (1) Similar geometry should be interpreted as similar length, width, and skew.
- (2) An example for this design condition would be a bridge greater than 80 feet (24.400 m) wide for a local road with turn lanes and raised median.
- (3) On a case-by-case basis, with approval of the supervising Section Leader, if left and right bridge geometry is very close to similar the designer may assign a single design number.

For corridor projects the preliminary designer shall assign a file number for each preliminary engineering (PE) number. For smaller projects without a PE number, assign a file number for each project. To minimize file numbers, miscellaneous structures generated before a project is complete shall be associated with the original file number.